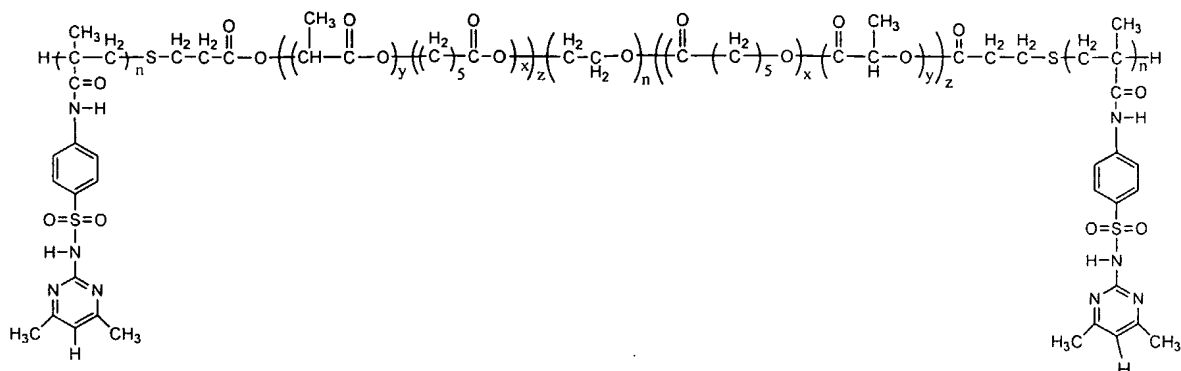


**Claims**

1. A block copolymer formed by coupling the following components with each other:  
 (a) a copolymer of a polyethylene glycol (PEG)-based compound with a biodegradable polymer; and  
 (b) a sulfonamide-based oligomer..
  2. The block copolymer of Claim 1, wherein the polyethylene glycol-based compound is represented by the following formula 1:  
 [Formula 1]
- $$\text{RO}-\left(\overset{\text{H}_2}{\underset{|}{\text{C}}}-\overset{\text{H}_2}{\underset{|}{\text{C}}}-\text{O}\right)_n-\text{H}$$
- wherein R represents hydrogen or an alkyl group containing 1 to 5 carbon atoms, and n is a natural number ranging from 11 to 45.
3. The block copolymer of Claim 1, wherein the molecular weight of the polyethylene glycol-based compound is 500-2,000.
  4. The block copolymer of Claim 1, wherein the biodegradable polymer is at least one selected from the group consisting of caprolactone, glycolide and lactide.
  5. The block copolymer of Claim 1, wherein the copolymer of the polyethylene glycol-based compound with the biodegradable polymer is at least one selected from the group consisting of polylactide, polyglycolide, polycaprolactone, poly(caprolactone-lactide) random copolymer (PCLA), poly(caprolactone-glycolide) random copolymer (PCGA), and poly(lactide-glycolide) random copolymer (PLGA).

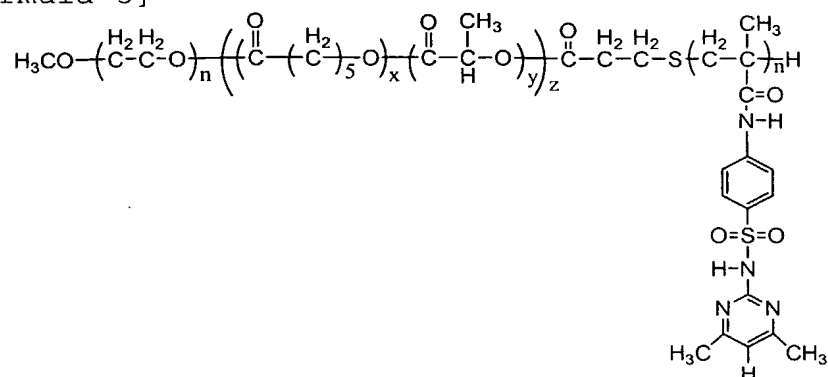
6. The block copolymer of Claim 1, wherein the molecular weight ratio of the PEG-based compound to the biodegradable polymer is 1:1-3.
- 5
7. The block copolymer of Claim 1, wherein the sulfonamide-based oligomer contains, at the terminal end thereof, a hydrophilic functional group selected from the group consisting of hydroxyl, carboxyl and amine groups.
- 10
8. The block copolymer of Claim 1, wherein the sulfonamide-based oligomer is formed from sulfonamide-based compound which is(are) at least one selected from group consisting of sulfamethisole, sulfamethazine, sulfasetamide, sulfisomidine, sulfafenasole, sulfamethoxasole, sulfadiazine, sulfamethoxydiazine, sulfamethoxypyridazine, sulfadoxine, sulfapyridine, sulfabenzamide and sulfisoxazole.
- 15
- 20
9. The block copolymer of Claim 1, wherein the molecular weight of the sulfonamide-based oligomer is 500-2,000.
- 25
10. The block copolymer of Claim 1, which is a triblock or higher order multiblock copolymer.
11. The block copolymer of Claim 10, which is a triblock or pentablock copolymer.
- 30
12. The block copolymer of Claim 1, which is represented by the following formula 2:  
[Formula 2]



13. The block copolymer of Claim 1, which is represented by the following formula 3:

5

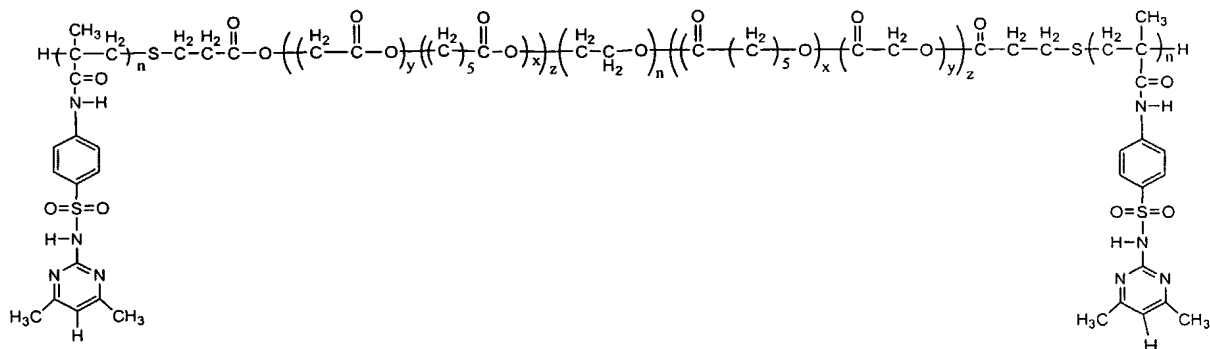
[Formula 3]



14. The block copolymer of Claim 1, which is represented by the following formula 4:

10

[Formula 4]



15. A hydrogel composition comprising a block copolymer as claimed in any one of Claims 1 to 14.

16. A hydrogel formed from a hydrogel composition as claimed in Claim 15.

5